

Responses to supplementary questions

Barwon-Darling Water (no specific witness)

1. *If irrigators understood that 1994 was a cap on development, why did they then proceed to massively increase storages in the northern basin?*

Our comments are mostly restricted to our experience on the Barwon-Darling.

There has been no massive increase in storages in the Barwon-Darling catchment since the cap was implemented by the NSW government in the Barwon-Darling in 2007.

In fact, some storages and pump sites on the Barwon-Darling have been retired since the introduction of the cap because the cap cuts of some 67% (of the annual volumetric limit for all BD farmers) led to stranded assets in our communities (irrigation development without water).

It appears that the drafting of this question reveals a basic misunderstanding of the cap.

All reports on the cap clearly explain that the Murray-Darling Cap is a cap on “diversions” and not a cap on “development”. So, the question itself is based on a faulty premise. As water users in the Barwon-Darling, we understand that any new development must be underwritten by water trading within the valley, or by gains in water efficiency. The cap on diversions (not on development) is a basic cap principle.

Any increases in development may be the result of farmers achieving better water efficiencies – which have been excellent in the cotton industry over the past 20 years – or they might simply be a result of water trade. However, this has not led to any increases in water diversions on the Barwon-Darling. In fact, the implementation of the cap on the Barwon-Darling has led to reduced diversions in this valley.

Our water storages are also required holding our other licensed water, and for environmental purposes i.e. to ensure water is recycled and reused and to ensure any contaminated runoff is not released back into rivers. This was explained during the hearing.

Diversions in the northern basin are managed by measurement, monitoring, reporting, and accounting of water use against volumetric limits within a license. This level of accountability does not exist for floodplain harvesting despite being a component of the cap and licensing proposed in the first water sharing plans.

Available water for irrigation on the Barwon-Darling has reduced over time due to reforms, including the cap on diversion in 1993/1994, then water sharing plan limits in the 2000’s, the Basin Plan in 2012, and new water sharing plans in 2020.

2. *How many megalitres of water does it take to grow a hectare of cotton, on average?*

This is a difficult question to answer as it depends on geography, climate, climate variability, cotton plant variety, agronomic and farming decisions, and farm water efficiency levels. At Bourke in a wet season, with all factors going for you, it may take less than 10 megalitres to grow a hectare of cotton, but in a very dry season, with factors against you, the answer may be 14 megalitres. There is no accepted average in the industry, but cotton uses similar water per hectare as it takes to grow any summer crop at Bourke. The figure is always higher on the Barwon-

Darling because we store our own water on farm, as we have no public dam from which to order stored water.

These figures will be different at Tilpa, Brewarrina, Walgett, Collarenebri and Mungindi, and will vary from farm to farm.

All crops require water to grow, either from rainfall, runoff or stored soil moisture from water applied through irrigation.

But the question becomes irrelevant as irrigators can elect to use their limited volumes on whatever crop they choose. The more important thing is that, regardless of what crop is grown, that irrigators become as efficient as they can be with each megalitre of water.

3. *How regular are flood events in the Northern Basin?*

Flood regularity is variable depending on location and the scale. This information is best sourced from the people who collect and analyse data on flows and floods. We suggest this question be directed to the Bureau of Meteorology, the NSW State Emergency Service, DPIE-Water and WaterNSW.

4. *What would prevent an irrigator from wanting to take 500% of their allocation in a single flood year?*

It is hard to determine what an irrigator might *want*, except maybe for a full storage and a bumper crop each year. Prevention of wanting to use 500% each year is difficult to say, but prevention of actually taking 500% each year may include plan rules, limits on account volume (or no account volume), or having full storages and/or enough water from other sources. Infrastructure and water availability are natural limits.

If licensing of floodplain harvesting existed as proposed in the Border Rivers, Gwydir and Macquarie valleys, with shares reduced to allow for 500% carryover to maintain the long-term limit, then several factors would limit take to the maximum account limit. These factors include volume of water in account, the size and length of the flood, infrastructure limits and available air space in storage.

Currently, there are no regulatory limits on take during a flood event.

5. *Have you modelled the impacts of climate change in your valley?*

No, we haven't, but we believe that DPIE has done this work under the Regional Water Strategy, which has not yet been released for our region.

Farmers and irrigators everywhere, adjust to changes in climate everyday through their farming decisions. Few people farm the same way they did 20-years ago and the do not expect to be farming the same way in another 20-years.

We do not have the capacity for such modelling but draw on information by industry research as well as the work under the NSW Government's Regional Water Strategy.

The NSW Regional Water Strategies include climate scenarios into a decision-making framework, along with exciting tools such as the available water determination process and efficiency measures. We note the actual use of water and policies to ensure that when water is available, it is used as efficiently and responsibly as possible is key.

For irrigators, research and innovation in water use efficiency is critical to their ability to adjust to changes in climate. This coupled with programs that encourage efficient use of water when its available, has allowed production to continue to grow, despite reductions in water availability through policy reforms and lower allocations due to inflows as evident in the last 10-years.

- a. *What do those models say about the reduction in flood events due to climate change?*
See above and refer to Regional Water Strategies

- b. *What do those models say about the reduction of inflows due to climate change?*
See above.